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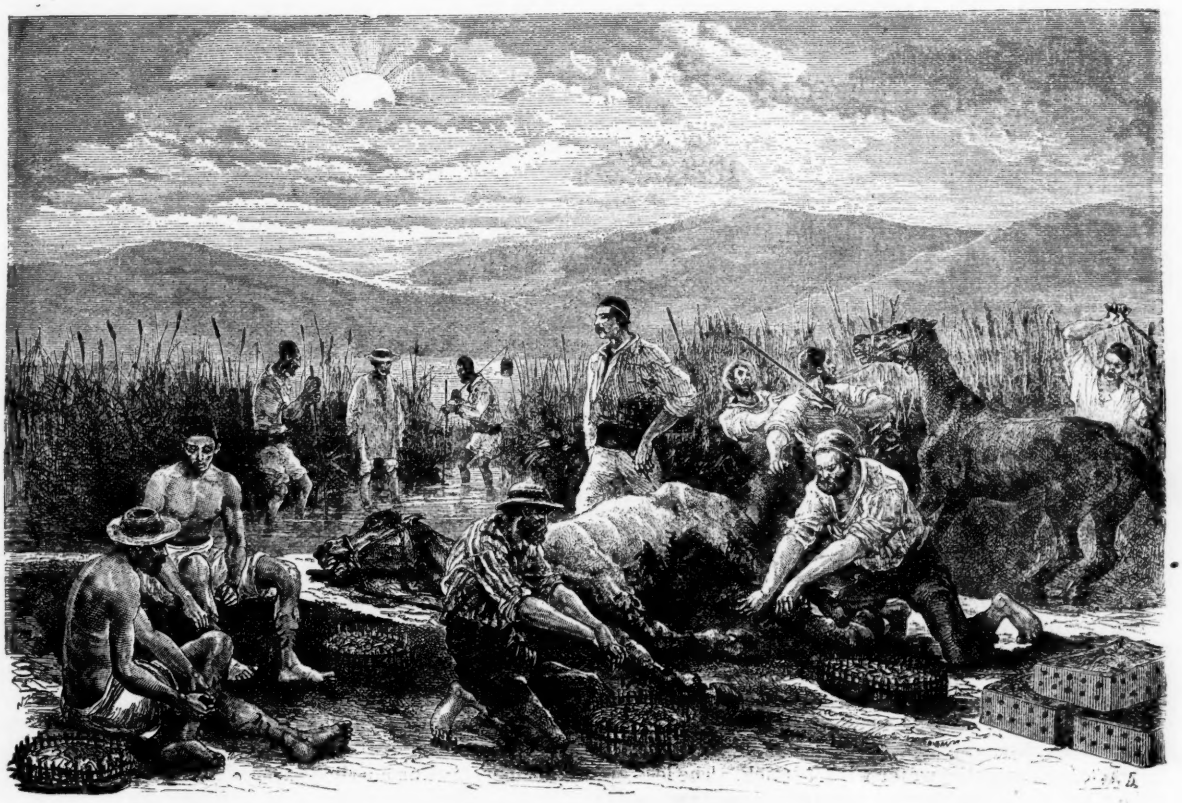
LEECH FISHING IN GREECE.



Catching Leeches in Lake Topolias

It is not known with any certainty how long leeches have been used in medical practice, but there is no doubt that in some parts of Asia it antedates historical writings. In Greece they were mentioned in medical writings of the century preceding the Christian era, and they came into use in Italy somewhat later; but it was not until the middle ages that they were commonly employed in Central Europe. Although they are by no means so often resorted to now as in the days when blood-letting was more in vogue, they are still in pretty constant demand, owing to the relief which follows the local abstraction of blood in certain cases of limited inflammation, and which is not to be wholly accounted for by the quantity of blood drawn.

There are a number of genera and a great variety of species, most of them being found in fresh water. Some, however, inhabit the sea, and still others live upon land. A species of the latter infest the island of Ceylon, and were described by Sir James E. Tennant as being about an inch in length and about the size of a knitting needle, but capable of distention to the thickness of a quill and to the length of about two inches. It can penetrate the meshes of the finest stocking, and those who have occasion to walk through tall grass or among shrubs find it necessary to protect their legs with leech gaiters of closely woven cloth, leather, or rubber boots. Horses and other animals are rendered frantic by their attacks, and even have been killed by them. They swarm in the grass

of the warm and moist valleys of the Himalayas of India, as well as in those of Sumatra, Java, and some parts of South America. Fresh-water ponds in this country are occasionally so infested as to prevent their being used for bathing. While our native leech is often used for blood-letting, the larger varieties imported from Northern Europe are generally more esteemed. The leeches of Southern Europe and of Africa are not so large, but they form a considerable proportion of the commercial supply—particularly those from Greece, where their capture has been a local industry for many generations. Australia is said to abound in leeches, and to furnish a very considerable supply of those used in Europe and America.

In England, and especially in France, the propagation of leeches in artificial ponds has been undertaken as a paying industry, but the bulk of the supply is probably derived from natural sources.

A French writer, Mr. Henri Belle, who spent many years in Greece, has given a very graphic account of the methods pursued in that country for catching leeches, from which we derive the following text and our illustration. It will be evident to our readers that a Society for the Prevention of Cruelty to Animals would have a fine field for effort in that portion of Europe.

Speaking of a visit to Lake Topolias (ancient *Copais*), Mr. Belle says:

We had approached the mouth of the Cephissia, and our boat again entering the rushes brought us to the base of a little hill where the meandering walls indicated the site of the ancient Orchomenus, one of the richest and most powerful cities of heroic Greece; but the village which now exists—miserable and fever-stricken—has the barbarous name of Skripou. On the shore of the lake eight or ten human beings, lean and in rags, were executing curious movements, the reason for which we could not understand. They went to the depth of their knees into the water, standing as motionless as herons watching for their prey; then, seating themselves on a stone on the land, they scraped with great care their legs, which were covered with black spots, like the skin of a leper. As we were jumping from stone to stone to approach them, the steward of Mr. S—— told us they were fishers for leeches. The savage appearance and gallows look of these curious workmen were not calculated to inspire confidence. Dressed in dirty rags, they spend their days in the marshes, stirring the water with a stick. The leeches, which live among the reeds, arrive in myriads and attach themselves to their legs, from whence they are removed and placed in barrels or boxes pierced with holes and filled with wet rushes. At this trade these creatures can make twenty francs a day, but their fishing season lasts but two or three months, and half their gains will then have been spent for drink. There is nothing so hideous as the interior of the huts where these miserable men pass a part of each night in brutish drunkenness, replacing their impoverished blood by alcohol, which inflames the thousand little wounds caused by the leeches. No Greek would consent to follow such a trade, and all the fishermen there belonged to that interloping class which inundates the ports of the Levant, having no nativity and seeming to be the result of the vices of all the nations in juxtaposition in that corner of the world.

At a little distance from his comrades an old fisherman sat in the sun in the act of removing the leeches he had just caught, and nothing is more horrible than his lean shins, bleeding and covered with voracious worms which his trembling hand could hardly remove. His hoarse voice had the smothered sound of a dying man, and through the holes in his shirt one could see his emaciated body, which resembled a skeleton with the horny, brown skin shrunken to the bones. His eyes, half veiled beneath their purulent lids, had lost all expression. An old hat without a top showed the crown of his bald head covered with pustules and scabs, and from the whole emanated an odor of alcohol. For more than thirty years, said our guide, this man has come here to fish for leeches. No one knows his name or country. He has himself forgotten where he was born and where he came from. Here we call him the old Yuruck, because certain words in his unintelligible jargon lead us to believe that he belongs to that race of Turkoman Yurucks of which a few tribes are established near Solanique, and near Brousa in Anatolia. He earned a great deal of money in his day, but the passion for *raki* ruined him, and then the commerce has become less and less lucrative on account of the combination of the Smyrna merchants. Now he works at his task, and drinks at night what he receives for his work—that is, four drachmas. I engaged him for a month, but it was a very poor speculation, for the leeches paid no more attention to his old legs than they did to the sticks which moored the boats. It is not at all rare, however, to see many of these fishermen amass quite a large sum by the end of each season. These have improved their industry, for it is not only the legs of themselves and their less fortunate companions which they expose to the leeches, but those of horses, which they buy in the country. The poor animals which serve as bait are painful to look at with their wounded sides and swollen legs. They know so well the sufferings which attack them each day that they oppose it with all the resistance of which they are capable. But their strength, already weakened, succumbs rapidly beneath blows, and the agitation of the water during the brief combat only attracts a larger number of leeches. Soon a convulsive trembling agitates the miserable beast, and they hurry him out of the water so that he will not become too weak and fall in the liquid mud and smother. More often, as soon as he has taken a few trembling steps, he falls on his side, his nostrils close, and the dim eyes show that life is nearly ready to leave the worn-out body. His legs and abdomen are covered with hundreds of leeches gorging themselves with blood and forming a glutinous coating horrible to see. After they have pulled the leeches off, the horse, if he has strength to get up, is allowed to wander four or five days in the neighboring waste land, where the hard and sparse plants upon which he grazes do not suffice to repair the forces which he has lost. When he is old and difficult to sell, the last fishing days above all are, for the poor animal, days of atrocious torture. Without relief or mercy, and without even time to eat, he remains plunged in the lake, and grows weaker and weaker, and the whole body is covered with the famished vermin. I have even seen the eyelids disappear entirely under a thick layer of leeches. He has ceased to walk, and they have to drag him out of the marsh; and while he is yet alive and in convulsions of agony he is skinned, because the skin is worth a few drachmas. Altogether it is a horrible spectacle, this *exploitation* of the beast by man and of the man by himself, and we would not advise sensible tourists to visit the leech fisheries of Topolias. If, however, they do and are hungry, they will find abundance of fish, especially monstrous eels, large as young boas, and with a delicious flavor.

[ORIGINAL COMMUNICATION.]

FLUID EXTRACT OF IPECAC.

BY

PROF. J. U. LLOYD,

Of Cincinnati, O.

(Continued from page 69.)

STANDARDIZATION.

ALTHOUGH it had long been known that the alkaloid emetine dominated the emetic constituents of ipecac,* until a recent period that fact had not been seriously considered in the establishment of a comparative strength for galenical preparations of that drug. This is shown by the writings of leading pharmacists preceding 1880, for the therapeutic value of fluid extract of ipecac was until that date considered from a basis of total extractive matters. It was evidently accepted that emetine was but one of several factors, and writers probably felt that it would be unwise, from a consideration of this one principle, to attempt to affix a definite value to a preparation that possibly carried so many unknowns. Surely no man will argue that Prof. Procter and Dr. Squibb were not aware of the importance of emetine, and none can deny that these talented men and their associates were in every way capable of devising methods of alkaloidal standardization of fluid extract of ipecac, had they at that time deemed it wise to do so. Hence, not until 1885 was it (to my knowledge) prominently advocated that ipecac and its preparations should be assayed. Then Dr. A. B. Lyons† strongly urged the establishment of a "ready means of ascertaining the *quality* of preparations of this drug," and he announced that this object could be safely accomplished by assaying its galenical preparations for emetine. He reviewed the methods that had been suggested for determining the emetine value of ipecac, and contributed a valuable treatise to the literature of that subject. However, the chief part of his paper was devoted to the assaying of powdered ipecac, which in my opinion (and Dr. Lyons will agree) is but one step in the establishment of a method for making a responsible fluid extract; for, by faulty manipulation, a poor preparation can be made of a good drug. Shortly after this (1885) Mr. W. A. H. Naylor,‡ before the British Pharmaceutical Conference, advocated that the fluid preparations of ipecac be made by alkaloidal standard.§ Then (1887)‖ Mr. H. W. Snow contributed an exhaustive paper on the analysis of ipecac and its preparations, which paper is the most valuable to that date. Next Mr. John Williams** and Mr. John E. Pennington†† contributed to the assay of the drug, and Messrs. J. O. Braithwaite, J. C. Umney, and T. P. Blunt‡‡ read papers before the British Pharmaceutical Conference (1889) on the alkaloidal assay of ipecac preparations. These were followed by an elaborate paper from Prof. W. Simonson, of Cincinnati,§§ on the emetine value of fluid extract of ipecac, which for patient research and analytical data stands unsurpassed. These papers, together with the tone of all the standard works on pharmacology, finally led numbers of pharmacists to a thoughtful advocacy of an alkaloidal standardization of the preparations of ipecac. The efforts of zealous supporters of standardization from among prominent manufacturing pharmacists have also given an impetus thereto, the most enthusiastic probably being Parke, Davis & Co., Eli Lilly & Co., the Edgar L. Patch Co., and Frederick Stearns & Co. These well-known firms have for some time severally advocated the alkaloidal standardization of alkaloid-bearing galenicals, ipecac being prominent. They have each a generous business, their preparations command the respect of pharmacists at large, and it is to their commercial interest as well as professional reputation to improve methods and establish uniform processes; and I believe that their experience is such as to warrant a careful consideration of their views by apothecaries. I believe, however, that methods that are feasible in some cases may not be practicable in some others, and I refer now to persons, who manipulate small amounts, with whom processes adapted to manufacturers who work on a large scale may not be economical.‖‖

However, whatever may be the conclusion of some apothecaries (not excepting, perhaps, even the opinion of the United States Pharmacopœia Committee) in connection with this subject, and the individual views of writers like myself, it is evident that those who manufacture fluid extracts for the market must in the near future give an assurance of an assay valuation for such as are prominently alkaloidal, irrespective of the United States Pharmacopœia. Indeed, the tendency of the times teaches me to believe that pharmacists are likely to demand of manufacturers more, perhaps, than it would be judicious to expect of drug-store manipulators, to most of whom, with the constant interruptions that necessarily accrue from the retail business, elaborate assaying is neither practicable nor remunerative. Standardization will, it appears, possibly exclude from profitable competition most of those who manufacture on a small scale for personal needs, unless methods for making these assay determinations are simplified and cheapened. The expense of assay determinations, the time consumed thereby, and the uncertainty of results, together with the various losses indirectly incurred by neglect of the business of the store, seem to me to indicate that but few apothecaries will now feel warranted in preparing standardized fluid extracts for their own consumption. It is not, however, altogether a question of capacity, as some believe, for the methods of assay open to manufacturers are open alike to apothecaries, who, as a class, are as capable as are the manufacturers; and I believe, as a rule, the better share of the assay processes has been evolved by apothecaries. It is simply a bread-and-butter problem. Will it pay to make standardized galenicals, or is it best to buy them? Standardization is a small matter for a manufacturer who employs one or more assayists. Where thousands of pounds are to be determined the expense per pound is trifling, but the labor and expense of assaying a batch of

* Emetine was discovered in 1817 by Pelletier and Magendie.

† An able paper read before the Michigan Pharmaceutical Association.

‡ This paper appeared about the same time as Dr. Lyons' publication and was evidently written independently.

§ Pharm. Journ. and Trans., Dec., 1885.

‖ A paper read before the Michigan Pharmaceutical Association, 1887, p. 93.

** Pharm. Journ. and Trans., Sept., 1887.

†† Proc. Am. Pharm. Assoc., 1888.

‡‡ Pharm. Journ. and Trans., Sept., 1889.

§§ Proc. Amer. Pharm. Assoc., 1889., p. 188.

‖‖ To the writer the working process selected is immaterial. If standardization *will standardize* and establish uniformity and can be made practical, the move will be supported. All sides of the problem should be considered, however.

100 C.c. of fluid extract of ipecac are the same as those of assaying a single batch of 100 pounds or 1,000 pounds, and I fear that even the most expert and talented apothecaries (excepting from principle, pride, or from an educational standpoint) cannot afford to undertake the task and thereby neglect their stores for the trifling return that comes from making small amounts of fluids.

In connection with the subject of assaying fluid extract of ipecac for emetine and establishing the process for making the fluid extract, we are also led to problems embracing a comparison of extractives and ultimate valuation of products. These were, as has been stated, outside the field that confronted Prof. Procter when he devised the present United States Pharmacopœia process, and can only be satisfactorily determined by patient investigation. Since, however, the era of assaying galenicals is upon us, or close to us, and as fluid extract of ipecac will assuredly appear in the first list, it is imperative that we now make comparisons of processes from a standardization point.

Notes on Various Medicinal Chemicals.

[From E. Merck's Circular, January, 1891.]

Cathartic Acid (Acidum cathartinicum).—The commercial article is, properly speaking, merely a purified extract of senna, containing the active principles. It contains 20 to 25 per cent of mineral matter.

Pure cathartic acid is excessively prone to decomposition. All attempts made by Merck to prepare it in a pure state have so far resulted in failure. He has therefore decided to take the article from his list.

Embelate of Ammonium.—The ammonium salt of embelic acid, the latter being an organic acid derived from the fruits of the East Indian *Embelia Ribes.* The acid itself, when pure, appears in magnificent orange-red crystals, insoluble in water, but soluble in alcohol and chloroform. The ammonium salt possesses, according to Warden, powerful tænicidal properties, being successful when all other tænicides failed. It has the additional advantage of being tasteless. In the case of children, the dose is 3 grains; in the case of adults 6 grains or a little more. The remedy is best given mixed with syrup or honey, and a dose of castor oil should be administered both before and afterwards.

Ammonium Tellurate.—A white, amorphous powder soluble in dilute acids. A. Brociner has recommended this salt as a color reagent for various proximate principles. One part of it is triturated with 20 parts of sulphuric acid (*Journ. Chim. et Pharm.*, 1890, 468).

Silver Potassio-Cyanide, or double cyanide of silver and potassium (AgCy.KCy). This salt is in form of white crystals, soluble in water. According to Behring, it is a very efficient antiseptic, while its toxicity is comparatively slight in the quantity requisite to produce antisepsis.

Aristol.—This body has been used for some time as an efficient antiseptic. It is an iodine derivative of thymol, forming a reddish-brown, odorless powder. It is insoluble in water and glycerin, but easily soluble in ether, chloroform, and fatty oils. In preparing solutions of aristol, *no heat must be used*, because this causes a change in the molecular arrangement of the compound. Even exposure to light has this effect.

Aristol is either applied in its pure condition, being dusted upon the affected surface, or it is employed in 10-per-cent solution in ether, collodion, butter of cacao, etc.

Gold Bromide.—According to Goubert, bromide of gold is a most efficient remedy in epilepsy. There being three different bromides of gold, and Goubert being disinclined (as Merck states) to state which of them he used, recourse was had to what Goubert published on the subject. In his paper ("Nouveau traitement de l'epilepsie," Paris, 1889) he reports that he used an aqueous solution of the salt. This permits the conclusion that he used the water-soluble tribromide. But, unfortunately, this salt is very unstable. It is, therefore, recommended by Merck to employ in place of it the much more stable double salt next mentioned:

Gold and Potassium Bromide—formula: $AuBr_3.KBr.2H_2O$. This is in form of well-defined crystals, soluble in water and alcohol with a reddish-brown color.

The corresponding sodium salt exists ($AuBr_3.NaBr$, anhydrous), but it is very hygroscopic.

Benzoyl-Guaiacol (Guaiacol benzoate, or Benzosol).—This synthetic compound has the composition:

$$C_6H_4 \begin{cases} OCH_3 \text{ (in ortho position).} \\ OCOC_6H_5 \text{ (in meta position).} \end{cases}$$

It forms a colorless crystalline powder, almost odorless and tasteless, insoluble in water, easily soluble in chloroform, ether, and alcohol. It contains 54 per cent of guaiacol.

This compound permits the introduction into the stomach of quantities of guaiacol which it would be impossible to administer of the pure substance owing to its caustic properties. Prof. Sahli, of Berne, expected great benefit from using this compound in phthisical patients, but reported unfavorably after having tried it. On the other hand, Walzer obtained as good results with it as with creosote.

Bismuth Sodio-Salicylate.—This is prepared by mixing molecular weights of sodium salicylate and bismuth salicylate. Water dissolves the former and leaves the latter behind.

Caffeine Tri-iodide—or, more properly, hydriodide of di-iodo-caffeine—$(C_8H_{10}N_4O_2I_2.HI)_2.3H_2O$ [?], forms long, dark-green prisms having a metallic lustre and easily soluble in alcohol. On shaking the salt with water, iodine passes into solution. Granville has recommended this salt for internal use, because the iodine is quickly set free in the stomach without producing the disagreeable symptoms caused by alkali iodides or the iodine compounds of quinine.

Cetrarin.—The substance extracted from Cetraria has been found to be a stimulant to peristaltic motion, and to increase the number of red and white blood corpuscles in man. It is, therefore, indicated in chlorosis, the dose being 1½ to 3 grains daily.

Copper Arsenite.—It was J. Auld who drew attention to the very beneficial effects derived from arsenite of copper in acute gastric troubles.

The salt is best administered in very small, often-repeated doses. In cholera the daily dose would be about $\frac{1}{140}$ grain contained in 4 to 6 fluidounces of water, a teaspoonful of this solution being given at first every ten minutes, later every hour, or, if required, every half hour. In severe cases of true cholera, of cholera infantum, and of dysentery, the remedy has been found frequently to cut the disease short.

Hashishin is a name of the extract of Indian hemp prepared with alcohol of 90 per cent and washed with water. From this is prepared the

Extractum Cannabis Indicæ pingue (fatty or fat extract of Cannabis Indica). This is made by dissolving 5 parts of "hashishin" in 95 parts of butter. The resulting compound is highly recommended by Germain Sée in gastric neuroses and dyspepsia, for removal of the pain and restoration of the appetite. The extract being very finely divided, a small quantity only is required to have the desired effect. The daily dose of the compound is about ¾ grain. Larger doses (1½ grains and more) produce hemp intoxication. Merck suggests butter of cacao in place of butter, as the former is less liable to decomposition.

"*Hydrargyrum glutinopeptonatum hydrochloratum.*"—This is a new mercurial compound, containing 25 per cent of mercuric chloride in combination with peptones derived from the digestion of grain albuminoids. It is very stable, soluble in all proportions of alcohol or water, but very hygroscopic. For this reason it is best kept in 10-per-cent aqueous solution. Dr. Hüfler recommends the compound, by way of hypodermic injections, in

syphilis. The solution is diluted until one syringeful contains 0.04 Gm. of the preparation (reckoned as dry), equivalent to 0.01 Gm. of bichloride. If the solid compound is at hand, 4 Gm. of this are dissolved in distilled water, the solution filled up to 100 C.c., and, if necessary, filtered. The injections are administered either between the shoulder blades or in the lumbar region. About twenty injections are required to effect a cure.

Hydrargyrum thymolo-aceticum.—This salt has been known for several years. More recently several authorities have made very favorable reports about it. It is one of the insoluble mercurials used hypodermically, being held in suspension. Löwenthal's formula is:

Hydrargyri thymolo-acetatis	1.0 Gm.
Glycerini	10.0 "
Cocainæ Hydrochloratis	0.1 "

[Dissolve the cocaine salt in the glycerin, and thoroughly triturate with it the mercury salt. Shake well before using.]

Dose: 1 hypodermic syringeful once a week.

Hypnal, or Monochloral-antipyrin, consists of equal molecules of chloral and antipyrin, and forms odorless and tasteless crystals soluble in 5 to 6 parts of water. It is both an analgesic and a hypnotic. In doses of 1 to 2 Gm. it produces a quiet sleep without injurious effects. Bonnet recommends the following formula for its administration:

℞ Hypnal	10.0 Gm.
Aquæ destillatæ	65.0 "
Aq. Flor. Aurantii	5.0 "
Alcohol	40.0 "
Tinct. Aurantii	20.0 "
Syrupi	60.0 "
Tr. Croci	11 gtt.

Dose: 1 to 2 tablespoonfuls.

Zincum sulphydricum (Sulphydrate of zinc—$ZnS.H_2S$).—A white precipitate, which must be kept under water, since it easily decomposes when it is allowed to become dry. It has been used with success in eczema, psoriasis, and similar skin diseases. It is used both internally and externally—internally, in form of pills made with extract of gentian, the dose being about 2 grains daily; externally, in form of ointment, as follows:

Zinci Sulphydratis	10 parts.
Lanolini	40 "
Adipis	90 "

The Tests of Oil of Bitter Almonds.

SCHIMMEL & Co., in their semi-annual report on essential oils, published in April, 1890 (see this journal, 1890, page 108), gave a test for recognizing the presence of the artificial benzaldehyde, which is now declared by Merck to be entirely fallacious (*Jahresbericht*, dated January, 1891, page 39). Merck says:

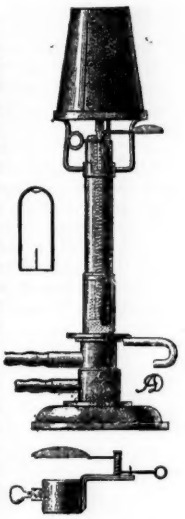
It is well known that there are often found in the market mixtures of oil of bitter almonds and benzaldehyde which are offered at a much lower price than pure oil of bitter almonds. Since the identity of both substances precludes the possibility of proving the presence of the adulterant directly, it has been recommended to demonstrate the presence of benzaldehyde by its alleged constant contamination with chlorinated bodies. This is accomplished by the exact and reliable method recommended by Hempe—decomposition of the oil by means of melted caustic alkali, and search for chlorides in the resulting mass. Schimmel & Co., however, have proposed the following test:

Saturate filtering paper with the suspected oil, set it on fire, and catch the products of combustion in an inverted beaker the walls of which have been moistened with water. Next rinse the beaker with a little water, filter the resulting liquid, and test the filtrate with chlorine.

Merck has no fault to find with this method, so far as the detection of chlorine is concerned, *if it is present;* but he finds fault with the assumption that an oil yielding no chlorine reaction must be pure.

Even on theoretical grounds—since a perfectly pure and chlorine-free benzaldehyde is certainly attainable in *some* way—the logic of the test is assailable. But Merck communicates the remarkable fact—derived from recent investigations—that even an *undoubtedly genuine oil of bitter almonds may occasionally contain chlorinated* compounds. Hence neither the presence nor absence of chlorine will hereafter afford any criterion for the judgment of this oil.

A NEW GAS BURNER.



A NEW "Bunsen" burner which permits graduation of the degree of heat obtained by it, has been devised by Franz Miller, of Bonn (according to the *Pharm. Zeitung*). The gas enters as usual through a lateral tube near the bottom (see cut), and finds its exit through four small openings in the usual manner inside of the tube. The access of air is regulated by a sleeve. When lower degrees of heat are to be obtained, a piece of wire gauze is slipped by means of a slide over the orifice of the tube. This causes a spreading of the flame, and the latter may be reduced to a very trifling amount without causing it to strike back. The wire gauze is fastened either directly to the tube of the burner or to the frame supporting the hood attached to the top of the burner.

The burner may, of course, be used like a simple "Bunsen" by removing the hood and wire gauze. Or it may be used as a blowpipe by inserting into the burner tube a blowpipe jet, and admitting through the second nipple near the base a current of air under pressure.

DETECTION AND ESTIMATION OF BORACIC ACID IN MILK, CREAM, ETC.

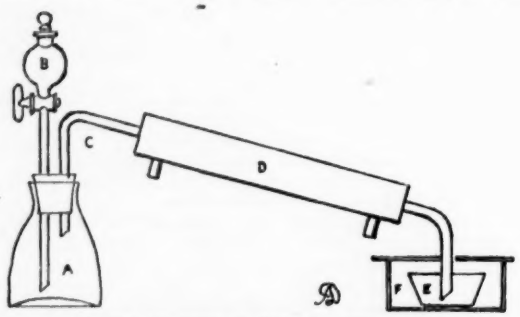
THE presence of boracic acid and borates in milk and cream can be detected without difficulty by applying the turmeric test and the alcohol-flame test to the ash.

The ash obtained in the course of the ordinary analysis is treated with a little water and made just acid with hydrochloric acid.

Numbered slips of turmeric paper are moistened halfway with the solution, and are preferably arranged on a glass plate and dried in the air bath; or a few drops of turmeric solution are added to the acidified ash, and evaporated to dryness in a porcelain capsule, the latter method being an exceedingly delicate one. On moistening with an alkali, the dark-blue color is obtained on the paper or porcelain when boracic acid is present. A dark-blue solution is obtained when water and an alkali are added to the residue in the porcelain capsule, but the color disappears with great rapidity, and I have hitherto been unsuccessful in determining the conditions which would render it permanent, or sufficiently permanent to admit of its being applied for purposes of estimation. The only method which up to the present I have found to be applicable for the estimation of boracic acid in milk and cream, is a modification of that described by F. A. Gooch in the *American Chemical Journal*, and which depends on the fact that free boracic acid can be completely separated from fixed substances by repeated distillation with methyl alcohol. I have repeated Mr. Gooch's experiments, and am able to confirm his results generally. He states that methyl alcohol, ethyl alcohol, and water are effective for the purpose of separation, in the order named, and this I have found to be the case; but the volatilization of even 0.2 Gm. of anhydrous boric acid by the use of ethyl alcohol is so tedious that it is not advisable to use this substance for the purpose. Complete volatilization of boric acid by the use of successive charges of methyl alcohol is easily and rapidly effected. I have found it best to use successive charges of 5 C.c. rather than 10 C.c. or more as used

by Mr. Gooch. I am not able to confirm his statement that in the presence of water methyl alcohol is not equally effective. My own experiments show that crystallized boracic acid is volatilized more rapidly than anhydrous boric acid, and that the addition of a few drops of water to the latter before evaporation or distillation with methyl alcohol promotes rather than retards the volatilization of the acid.

The method as now applied by me for the estimation of the acid in milk and cream is as follows: In the case of cream about 50 Gm., and in that of milk about 100 Gm., of the sample are rendered alkaline with caustic soda, evaporated to dryness, and incinerated. The ash, which need not, of course, be burnt white, is ground up and transferred, washing in with a little methyl alcohol and a few drops of water, to a conical flask, A, of from 200 C.c. to 300 C.c. capacity, provided with a doubly-perforated caoutchouc cork through which pass a stopcock funnel tube, B, and a delivery tube, C. The flask is attached to an ordinary condenser, D, by means of a flexible joint in such a way as to admit of its being shaken round occasionally, and is placed in an oil bath. The mixture in the flask is acidified with acetic acid, and 5 C.c. of methyl alcohol are run in from the funnel tube and distilled. The distillate is received in a weighed amount of pure lime



Cassal's Apparatus for Boric Acid Estimation,

(ignited to constant weight). About 1 Gm. is a convenient quantity. The lime is contained in a platinum dish, E, capable of holding about 70 C.c., which is placed in a glass receiver, F. This receiver may be made from a ground-edged glass vessel, covered with a perforated ground-glass plate. The end of the condenser tube passes through a grooved or loosely fitting cork in the perforation of the plate, and terminates just above the lime in the platinum dish.

Distillation with 5 C.c. of methyl alcohol is repeated several times, ten such treatments being ample for all likely cases. Fewer are generally quite sufficient. A gelatinous mixture is obtained in the platinum dish. It is well stirred, and allowed to stand for some minutes. It is then evaporated in an oil bath, and is finally heated over the blowpipe flame to constant weight. The increase of weight is boric acid, and the error does not in any case amount to more than 1 Mgm. plus when dealing with from 0.1 to 0.25 or 0.3 Gm. of anhydrous boric acid. To make sure that the acid has been completely volatilized, the residues in the distillation flasks are tested with turmeric paper. The few drops of water added before the first distillation greatly increase the rapidity of the removal of the boric acid.

The use of nitric acid is not advisable for the purpose of freeing the boric acid in the flask. Acetic acid presents no difficulties and is quite effective.—CHARLES E. CASSAL in the *Analyst*, 1890, 230.

Salinaphthol is the name which has been given to a compound of salicylic acid and naphthol, similar in character to the compound salol, formed by the combination of salicylic and carbolic acids. It was supposed that the new compound would be better than salol in the same affections, but clinical results have not yet been favorable. The dose of the substance is 5 to 10 grains.—*Chem. and Drugg.*

ON THE DETERMINATION OF THE ALKALOIDS IN NARCOTIC EXTRACTS.

O. SCHWEISSINGER and G. SARNOW have published the results of their latest studies on the above-mentioned subject in the *Pharm. Centralhalle* (No. 52, 1890). The basis of their method of isolating the alkaloids is the well-known method by agitation with an "immiscible" solvent ("shake method"), which method is preferred by many to the so-called "extraction" method.

Schweissinger and Sarnow ascertained that the "shake method" may be much simplified by employing a *large* quantity of the respective menstruum, in which case a single agitation is sufficient to extract the alkaloid. On the other hand, it is necessary that the volume of aqueous solution containing the alkaloids be quite small, in which case only a minimum amount of the volatile solvent is retained by the water, thus removing a source of error.

Among all volatile solvents, ether was found to be the least suitable for use in this method, principally because it is not a ready solvent for many alkaloids when employed cold. The authors, therefore, experimented with chloroform, and found that this, indeed, extracted the whole of the alkaloids at one operation, but that it had the drawback of readily forming emulsions which would not separate into layers of liquids. The sufficiency of chloroform alone, as solvent, however, is shown by analytical data quoted by the authors. The experiments were made in the following manner: 0.5 Gm. of an alkaloidal salt (sulphate of atropine) was dissolved in 100 C.c. of water, and portions of 10 C.c. of this solution were successively mixed with 1 C.c. of strong ammonia (20 per cent) and 40 C.c. of chloroform. The mixture was thoroughly shaken, then *half* of the chloroform separated, the chloroform removed by gentle heat, and the residue either dried or determined by means of $\frac{1}{100}$ volumetric acid, cochineal being used as indicator. We quote a few figures given by the authors:

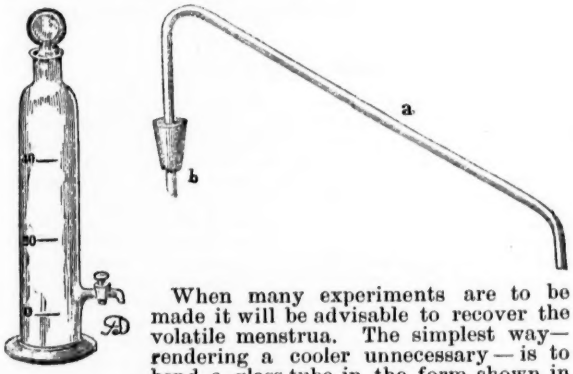
Atropine sulphate taken.	Half the chloroform solution should contain:	Found:	
0.042	0.021	0.022	By weighing.
0.021	0.0105	0.0105	
0.021	0.0105	0.0110	
0.021	0.0105	0.0108	
0.042	0.021	0.0207	By titration.
0.021	0.0105	0.0107	
0.021	0.0105	0.0103	
0.021	0.0105	0.0104	

However, the tendency of chloroform to form emulsions, as already mentioned, led the authors to look for the more suitable solvent. This they found in a mixture of *chloroform and ether* [this is, however, not new, as it has been already recommended and used by others, though perhaps not as a uniform and systematic solvent for the whole of the alkaloids encountered in narcotic extracts]. On shaking the aqueous solution of an alkaloid with this mixture, no emulsion results, and the whole alkaloid may be extracted in one operation. The mixture of chloroform and ether may be made in various proportions, so as to be either lighter or heavier than water. The choice between one or another depends somewhat upon the kind of separator which is used. In the case of an open funnel separator it is better to have the aqueous liquid above, so as to prevent evaporation of the volatile solvents. In the case of a stoppered separator the lighter mixture may be used, which will float on top.

It may be remembered that a mixture of equal volumes of ether and chloroform is heavier than the solution of the narcotic extract (see below); and a mixture of 25 C.c. of ether and 15 C.c. of chloroform is lighter. But 40 C.c. of either solvent are sufficient to extract the whole of the alkaloid from the quantity of extract directed to be taken, namely, 2 Gm. Even if this were to contain as much as 1 per cent of alkaloid, and 40 C.c. of the lighter mixture were taken, there would then still be present 750

parts of chloroform and 1,250 parts of ether to dissolve 1 part of the alkaloid.

The method of assaying an extract, for instance, of belladonna or hyoscyamus, is as follows: 2 Gm. of the extract are dissolved in 8 C.c. of water mixed with 2 C.c. of ammonia [20 per cent], and then 40 C.c. of a mixture of 15 parts of chloroform and 25 parts of ether added. The whole is then thoroughly agitated, and set aside so that the layers may separate. After half an hour 20 C.c. of the clear chloroform-ether layer are removed with a pipette, evaporated, and the residue weighed or determined by titration with $\frac{1}{10}$ volumetric acid. If a heavier solvent is used and the chloroform-ether layer lies at the bottom, 10 C.c. are drawn off into a carefully tared and graduated small flask. The whole operation may, with advantage, be carried out in a small stoppered shake cylinder (see cut) which has a stopcock near the bottom. This little cylinder has three graduation marks, the lowest at 10 C.c., marked 0; the next at 20, and the uppermost at 40. The stopcock (the interior capacity of which must have been taken into consideration when the graduations were made) is affixed at a height corresponding to about 15 C.c., which renders it possible to withdraw some of the chloroform-ether layer, no matter whether this is above or below.



When many experiments are to be made it will be advisable to recover the volatile menstrua. The simplest way—rendering a cooler unnecessary—is to bend a glass tube in the form shown in the cut. At one end is attached a good cork fitting into the Erlenmeyer flask from which the menstruum is to be distilled off. The descending arm of the glass tube (which must not be too narrow) is wrapped with several layers of moistened filter paper, which is kept damp by occasionally applying some cold water to it. In this way the tube acts as an efficient condenser.

If there is no object to be gained by recovering the volatile solvent, it is preferable to receive the 20 C.c. of the final chloroform-ether solution in a small porcelain capsule, and dissipating the solvent rather rapidly by placing it upon the warm hand or a gently warmed water bath.

Should a few drops of the aqueous solution be accidentally withdrawn at the same time as the chloroform-ether solution, the latter must be transferred to a second capsule, and fresh solvent be used for rinsing. The drops of water will remain in the first capsule, if the operator is skilful.

If chloroform is dissipated by evaporation, no open flames should be burned in the room, since traces of hydrochloric acid are produced [as well as chlorocarbonic acid, which acts as an irritant to the nasal and bronchial membranes]. All vapors of acids or ammonia must be carefully guarded against, since the result—which is to be determined by a highly dilute ($\frac{1}{10}$) volumetric acid—would be liable to be affected thereby.

To *weigh* the extracted alkaloids has been found by the authors to lead to reliable results only in the case of working with pure alkaloids or alkaloidal salts. In the case of extracts it cannot be used, since the results will be too high, the volatile menstruum extracting more or less of other constituents besides the alkaloids.

A good burette for use in this assay is one of only 10 C.c., divided into one-tenths, so that the divisions are rather far apart, permitting the reading off of as little as 0.02 C.c.

When the chloroform-ether layer from the withdrawn 20 C.c. has been dissipated, the residue is dissolved in a *very little* alcohol; 5 or 6 drops of tincture of cochineal are then added, together with a little water, and the $\frac{1}{10}$ volumetric acid then carefully dropped in from the burette until the point of neutralization is reached. The volume of the liquid to be titrated must not be more than 2 or 3 C.c., otherwise the contrast of tints in the indicator is not brought out sharp enough.

Each cubic centimeter of a $\frac{1}{10}$ normal volumetric acid corresponds to

Atropine	0.00289 Gm.
Hyoscyamine	0.00289 "
Strychnine	0.00334 "
Nux Vomica Alkaloids (strychnine + brucine)	0.00364 "

The authors say that they have tried the method only a few times upon extract of nux vomica, but regard it as suitable for this purpose. In the case of tinctures, the method is very easily applied, it being only necessary to evaporate it to a smaller volume, say 20 C.c. to 10 C.c.

Further analytical data furnished by the authors show that the results are very satisfactory.

Improved Desiccators.

WALTHER HEMPEL points out that the usual forms of desiccators are inefficient. A desiccator is a vessel so arranged that a container, filter, or other substance enclosed therein may become dry through its moisture being absorbed by sulphuric acid or chloride of calcium. Or it is used to allow a heated vessel to cool without being liable to absorb moisture. The usual form is a glass cylinder, with a lower receptacle for the sulphuric acid or chloride of calcium, and a glass plate or cover ground so as to fit air-tight. Hempel points out that *moist air is lighter than dry air*. Consequently, if any substance containing moisture is placed into a desiccator so that it is *above* the drying medium, it remains surrounded by a layer of light and moist air which only very slowly yields up its moisture, since there is no chance of any currents being produced in the confined space. If, however, the moist substance is placed *below* the drying medium, the absorption of moisture takes place very rapidly.

The author states that he made two parallel experiments with two desiccators of equal form and size. In one of them a watch glass containing 10 C.c. of water was placed *over* a vessel containing sulphuric acid, and in the other a similar watch glass with 10 C.c. of water *under* the sulphuric acid. It took *nine* days for the water to disappear in the former, but only *three* days for that in the latter. He therefore proposes to apply this fact in practice, and to reverse the arrangement heretofore used.

The best construction, according to the author, is the following: Upon a ground-glass plate place a high iron tripod, upon which is put a dish containing sulphuric acid or chloride of calcium, and cover the whole with a bell glass. The vessel containing the substance to be dried is put on the ground-glass plate between the legs of the tripod. After the bell glass has been put over as cover, there begins an immediate attraction of moisture from the lower vessel to the upper one, and a downward current of dry air. This circulation continues until no more moisture can be taken up.

The energy and rapidity of this internal current may be demonstrated to the eye by attaching to the upper and outer surface of the bell glass a receptacle containing a freezing mixture. It will then be seen that the interior surface of the top becomes covered with snow.

When sulphuric acid is used as drying agent, the author recommends to place into the dish a number of pieces of glass, porcelain, or pumice (the latter must first be freed from chlorides by heating it with sulphuric acid), so that they will project in numerous places above and beyond the edges of the dish. This will materially hasten the absorption of moisture.—After *Berichte*, 23, 3566.

The Official Name is "Tuberculin."—Prof. Libbertz affixes the official name "tuberculin" to all vials of the Koch lymph given out at his laboratory.

New Alkaloid from Conium.

E. MERCK has discovered a new alkaloid in the seeds of *Conium maculatum* (circular published January, 1891). It is contained in the highest boiling portion of the crude coniine, from which it may be separated by fractional distillation in vacuo, and subsequent crystallization. This new base crystallizes in needles, is easily soluble in alcohol, ether, and chloroform, melts at about 98° C., and boils at 230°-233° C. As it has been found by Ladenburg to possess the same formula as conhydrine ($C_8H_{17}NO$), the latter proposes to call it pseudoconhydrine.

New Alkaloids from Sabadilla.

E. MERCK reports in his latest circular (issued at Darmstadt in January, 1891) that he has succeeded in extracting two new bases from sabadilla, for which he proposes the names sabadine and sabadinine.

These two alkaloids have been heretofore overlooked, probably on account of a remarkable property which they possess, namely, they remain in solution after being set free by caustic or carbonated alkalies or by ammonia, and separate in flakes only after the solution is warmed. They may be extracted from the aqueous solution by shaking with chloroform or ether.

Sabadine excites sneezing, but in a less degree than veratrine. Sabadinine has no effect upon the nasal passages.

Perfumes from Asafœtida.

F. W. SEMMLER has investigated the nature and composition of the essential oil of asafœtida, and has found that the crude oil (which he obtained from Schimmel & Co., of Leipzig) could be separated into four fractions by distillation in vacuo. The first fraction, obtained at a temperature up to 65° C., at a pressure of 9 Mm., when treated with metallic sodium in vacuo, as long as gas is given off, yields, on distillation, a colorless oil of *exceedingly* pleasant odor. This is a terpene of the composition $C_{10}H_{16}$. A similar oil, possessing a most pleasant lavender-like odor, was obtained from the fourth fraction, which boils in vacuo (at 9 Mm. pressure) between 133° and 145° C. The sulphuretted compounds which impart so disagreeable an odor to asafœtida are contained in the two middle fractions, boiling (at 9 Mm.) from 80° to 85° C. and from 120° to 130° C.—After *Berichte*, 23, 3530.

Piperazine or Spermine as a Nerve Stimulant and as a Solvent of Uric Acid.

W. MAJERT and A. SCHMIDT have recently published (*Berichte*, 23, 3718) the results of investigations made in the laboratory of E. Schering, of Berlin, regarding the new synthetic principle piperazine. The identity of this with Ladenburg's æthylenimine and Schreiner's spermine is now rendered certain. [More recent investigations render this doubtful.—ED. AM. DRUGG.] As the substance has already been put on the market and is likely to have a future of importance, its leading characteristics are here given.

Piperazine crystallizes from water in shining, apparently quadratic plates. It is easily sublimed, and melts, according to the above-named authors, between 104° and 107° C. It absorbs carbonic acid with avidity. A dilute aqueous solution of the substance may be distilled for days without driving over the whole of the base; but on raising the boiling point of the solution (by the addition of sodium chloride, or, better, sodium hydrate), the base may easily be distilled over, and in such a concentrated state that it congeals in the condenser.

The hydrochlorate appears to be a suitable salt for practical use; its composition is $C_4N_2H_{10}.2HCl.H_2O$.

The base itself is neither caustic nor possessed of toxic properties. Physiological experiments—which are, however, not quite concluded—show that it exerts a stimulating ("vivifying") effect upon the nervous system of man.

Piperazine is remarkable also on account of its great solvent power over uric acid, even when the latter is present in excess. Curiously enough, though, it always forms with it only the neutral urate of piperazine, having the composition $C_4N_2H_{10}.C_5N_4H_4O_3$. One part of urate of piperazine dissolves in about 50 parts of water at 15° C. And not only is piperazine the best solvent for uric acid so far known, but it has the further advantage that it dissolves it in the cold.

Heretofore the lithium salts have been relied upon as solvents of uric acid; but when lithium carbonate is introduced into the economy there is always formed only the acid urate, which requires 368 parts of water for solution.

It is quite likely that piperazine will play a rôle in the treatment of lithiasis.

In a paper immediately following the foregoing in the original, Prof. A. W. v. Hofmann announces that the supposed "æthylenimine" (or, English, ethene-imine) is nothing else than di-ethene-diamine—

$$C_2H_4\begin{Bmatrix}NH\\NH\end{Bmatrix}C_2H_4$$

which has been known a long time, and can be readily prepared from ethene chloride ("Dutch liquid") and alcoholic ammonia. Prof. Hofmann does not approve the new names bestowed on the compound, and proposes that it be called by its old name—Diæthylendiamin in German, which is equivalent to diethenediamine in English.

Reactions for Cocaine.

A SMALL quantity of cocaine, or one of its salts, or of the residue obtained by evaporating a solution, is mixed with a few drops of fuming nitric acid of sp. gr. 1.400, evaporated to dryness on the water bath, and the residue mixed with 2 or 3 drops of concentrated alcoholic potash. A distinct and peculiar odor, recalling that of peppermint, is developed. In Dragendorff's systematic scheme of analysis, cocaine is found among the alkaloids extracted by benzene from an aqueous ammoniacal solution. Of the other alkaloids of the same group, atropine, hyoscyamine, strychnine, codeine, and eserine give colorations when treated in the same way, and eserine also develops a disagreeable odor resembling that of phenylcarbylamine. Delphinine, brucine, and veratrine give only indistinct odors which cannot be confounded with that from cocaine. Sabadilline and narcotine can be recognized in the same way, but the other alkaloids give no sensitive reactions of this order.

The reaction will detect 0.5 Mgm. of cocaine hydrochloride.—F. DA SILVA in *C. Rend.* and *Journ. Chem. Soc.*

PHARMACIST SCHELL, of Mulhouse, has called attention to a new reaction which he has observed. When a minute quantity of cocaine hydrochlorate is rubbed with an equally small proportion of calomel, by means of a dry glass rod, on a dry porcelain surface, the mixture will immediately turn black when the operator merely breathes upon it. The same change of color may be obtained by using a glass rod dipped in water, most of the liquid being briskly shaken off. It is necessary that the amount of moisture be small, as a whole drop of water is sufficient to prevent the reaction. Taken in all, the breathing process is preferable. No other alkaloid will give the same reaction under similar conditions; pure atropine alone will blacken calomel when boiled with it in water. It should be remarked that atropine salts will not affect calomel, while the reverse happens with cocaine, the reaction being afforded by the salts alone and not by the pure alkaloid. Prof. Flückiger some time since mentioned several points of resemblance between atropine and cocaine.—Paris Correspondent of *Chem. and Drugg.*

Editor of Agricultural Paper—Look here, here's a man who asks the silliest questions!

Assistant—How about it?

Editor—Why, he asks me the best way to cure hams, and doesn't state in his note what's the matter with them. —*Lawrence American.*

Usego Paper.

THIS is a Japanese paper, prepared from the liber of the Japanese plant *Wickstrœmia canescens*, nat. fam. THYMELACEÆ. This paper is exceedingly light, thin, and pliable, but at the same time very tough and resisting.

Dr. A. Hoffmann has recommended it in place of wafers or capsules for administering medicines which are to be taken in form of powder. For this purpose the sheets are cut into pieces about 6 Cm. (2⅜ inches) square, the medicine is placed in the centre of a square, the corners taken up with the thumb and index finger of each hand, and the package then twisted together, the tails being cut off with the scissors.

The little ball is then laid on the tongue and washed down with water.

We have seen and examined this paper, which has been put on the market by Merck. It is certainly a marvel of paper-making.

The Antiseptic Properties of Sodium Fluoride.

O. HEWELKE has made experiments to test the antiseptic power of sodium fluoride by studying its effects upon the ferment and the alkaline fermentation of urine. He used alkaline sodium fluoride. *Torula Cerevisiæ* did not grow in the presence of 1 part of sodium fluoride in 100 to 300 parts of urine; in presence of 1 in 600 to 3,000 the fermentation was distinctly checked, and this was noticeable, although in a minor degree, when the proportion of sodium fluoride was reduced to 1:4,000. In the case of urine without any sodium fluoride, the fermentation commenced at the end of three to five days; the addition of 1 part to 2,000 of urine prevented fermentation until the fourteenth or fifteenth day, 1:600 till the sixtieth day, 1:100 over a month. Blood, with the addition of 1 part of sodium fluoride to 80–160, remained good for a long period, and a disagreeable odor was first developed at the end of several weeks.

In nutrient substances containing 1 part of sodium fluoride to 150 to 200, neither pathogenic nor non-pathogenic organisms developed; and even when the proportion of the salt was reduced to 1:600, evidences of a checked growth were observable. Some organizations proved more susceptible than others; for instance, 1:300 prevented the growth of the bacillus anthracis. In general, the pathogenic organisms proved the most susceptible.—*Chem. Centralbl.* and *Journ. Chem. Soc.*

Colors for Foods.

IN accordance with the Council of Hygiene's advice, the Prefect of Police of Paris has issued new regulations somewhat modifying those hitherto enforced respecting the use of coloring matters for articles of food. The following pigments are prohibited in all articles of food: Copper, lead, arsenic, and mercurial compounds of all kinds; also barium chromate, yellow ultramarine, gamboge, and alkanet. The following may not be used in ordinary articles of food: Coal-tar colors, such as fuchsin, Lyons blue, flavaniline, methylene blue, phthalein, and their derivatives; eosine, erythrosine, naphthol yellow, Victoria yellow, diazoic compounds, tropæolines, scylidines. But for coloring candies, liqueurs, ices, etc., the following may be tolerated in very small proportions:

PINKS: eosine, erythrosine, Bengal rose, phloxin, Bordeaux red, ponceau, and fuchsin, prepared without arsenic (Coupier's process).

YELLOWS: sulpho-conjugated derivatives of naphthol.

BLUES: Lyons blue, light blue, Coupier's blue, all triphenyl rosaniline, or diphenylamide derivatives.

GREENS: all mixtures of the yellows and blues given above; also malachite green (hydrochloric ether of tetramethyldiamidotriphenylcarbinol).

PURPLES: Paris violet or methylaniline. No pigments of the first group may be used for coloring any boxes, wrappers, or cases which are to come in contact with articles of food.

Tinfoil used for wrapping articles of food may not contain more than one-half of 1 per cent of lead, or more than 1 per 10,000 of arsenic.

The metal used for tinning copper and other utensils must be of similar purity. Pewter implements, such as pots or measures, employed in connection with food articles, may not contain more than 10 per cent of lead and 1 per 10,000 of arsenic.—French Corresp. of *Chem. and Drugg.*

Carbolate of Camphor.

THE following is taken from a paper on this subject by Dr. M. B. Cochran, of Iowa City, in the *Therap. Gazette* (1891, 92):

In the December number of the *Gazette* for 1887 I called attention to a mixture of Japan or laurel camphor and crystals of carbolic acid, under the above name, and gave some account of the therapeutic uses to which I had applied it. Dr. Th. Schaefer called attention to this preparation in 1885 under the name of "phenol-camphor," and used it as a local anæsthetic in odontalgia, introducing it, on cotton, in the cavity of a carious tooth; also as an anæsthetic in ingrowing toe-nails. He also used it in certain cutaneous eruptions due to cryptogamic causes.

The above is the only notice of it, so far as I am aware, until my article appeared in 1887, and at that time I had not seen the article of Dr. Schaefer. Since that time, however, I have seen various notices of it in different medical journals, and accounts given of the uses to which it has been applied.

I prepare it by adding 1 part, by weight, of carbolic acid to 3 parts of camphor, setting it aside for twenty-four hours, and straining through gauze. It is a permanent liquid, having a specific gravity of 0.990. It is thoroughly antiseptic and possesses unsurpassed germicidal powers. I dipped a piece of fresh meat (beef muscle), a square weighing about 2 ounces, in the carbolate, and then placed it in a bottle, closing the mouth with cotton; then placing the bottle in an east window, so that it was exposed to the sun's rays from the 1st of June until August, or until it was dry. No odor or indication of putrefaction was at any time perceptible. I impregnated gauze and cotton with it, and used it as a dressing for wounds after operations. It prevented suppuration in every instance when it could be well applied; but I found that, if applied to the skin for several days without dilution, it gave rise to an eruption of the surface, and that it was necessary to mix it with oil for continued external use.

I have injected it with a hypodermic syringe into acute abscesses or boils, with the effect of aborting them if suppuration had not begun, and of relieving the pain of them in every instance. When a few drops are injected under the skin, it produces complete anæsthesia in the immediate parts which lasts for several hours. Some soreness of the surrounding parts follows, but no abscess. A sharp smarting is felt at first, which only lasts a moment. A little ether or alcohol (pure) should be added to it for hypodermic use, so that it will readily flow through the needle. It combines readily with alcohol, ether, fixed and essential oils, and petroleum derivatives, but not with aqueous solutions or glycerin.

It readily dissolves menthol, cocaine, salicylic acid, iodoform, chloral hydrate, and mercuric chloride. When given internally in capsules, in doses of from 5 to 10 drops, it produces a sensation of warmth of the stomach not disagreeable, and gives rise to camphoric eructations which continue from one to three hours. When applied to inflamed or ulcerated mucous surfaces, such as the tonsils, pharynx, or cervix uteri, it causes smarting for a moment, and then relieves existing pain and acts as an antiseptic stimulant.

When rubbed upon the skin, it produces an agreeable warmth of the surface that continues for a considerable time.

When mixed with an equal quantity of cottonseed oil, it forms one of the most agreeable antiseptic dressings to incised, lacerated, or contused wounds that I have ever used, preventing suppuration always.

When properly applied upon gauze or absorbent cotton, and kept in contact with the wounded tissues, and when suppuration has set in, it changes the character of the discharges completely, destroying all fœtor if well applied, and relieving pain and soreness sooner than anything that I have ever used.

Campho-Phenique

is a somewhat popular disinfectant in the United States. According to Dr. J. Robinson (in *New Idea*) it was made by him long before the article was patented, his formula being:

Purified Carbolic Acid	1 oz.
Camphor	1 "

Mix and make solution.

Tinctura Hæmostyptica.

HEINRICH FRITSCH, of Breslau, has recently communicated the following formula, which he says yields a reliable preparation for internal use:

Ergot, powdered	10 parts
Alcohol	20 "
Sulphuric Acid	2 "
Water	q.s.
Syrup of Cinnamon (Germ. Ph.)	30 "
To make	232 "

Mix the acid and water, and heat to boiling. Infuse the ergot in this liquid for two hours; then evaporate to 182 parts, and add the alcohol and syrup of cinnamon.

The dose of this is 1 fluidounce three times a day.

[We see no object in first making a dilute solution and then evaporating it. Probably the same product is obtained by infusing the ergot with 2 parts of sulphuric acid mixed with enough water to obtain at once 182 parts of infusion.—ED. AM. DRUGG.]

On Extract of Belladonna.

IN a paper recently read before the Chemists' Assistants' Association at Edinburgh, Mr. W. B. Cowie reported on the alkaloidal strength of extract of belladonna as follows:

I estimated six commercial samples of the alcoholic extract. The process I adopted was to dissolve a definite weight of extract in acidulated water, remove coloring matter, etc., by shaking up with chloroform, making alkaline with ammonium carbonate, and then washing out the alkaloid with chloroform, transferring the chloroformic solution to a tared beaker, evaporating the chloroform, and weighing. The results were as follows:

No. 1, 3.27 per cent total alkaloid.
No. 2, 4.0 per cent total alkaloid.
No. 3, 3.6 per cent total alkaloid.
No. 4, 3.2 per cent total alkaloid.
No. 5, 1.6 per cent total alkaloid.
No. 6, 3.7 per cent total alkaloid.

No. 2 gives a fair representation of what the extract ought to be. Nos. 1, 3, 4, and 6 are too low, while No. 5 is hopelessly deficient. Dunstan and Ransom, in a paper in the *Pharmaceutical Journal*, give the percentage of alkaloid in nine samples of alcoholic extract of belladonna. Only two of them are the same. Their average is 2.87 per cent, which is extremely low, and the difference between the minimum and maximum is 2.8 per cent. Some of my results correspond with theirs, but my average percentage is rather higher.—After *Pharm. Journ.*

The Outlook for Medicinal and Other Crops in Europe.

THIS has been a very hard winter throughout Central Europe, and its effects will be felt for years. In an editorial in the issue of January 24th, the *Chemist and Druggist* says:

The Baltic ports are all ice-bound, and in Western Germany the Rhine, which has not been frozen since 1856, and the Moselle are thickly covered with ice. Under these circumstances trade with Central Europe is practically suspended, and orders are kept back wherever possible. Germany contributes to our materia medica comparatively few articles of first-class importance, and none the prospective supply of which is likely to be seriously affected by the recent severe weather. From Southern France, on the other hand, we not only draw annually thousands of pounds' worth of essential oils and extracts, but any severe injury to the olive oil crop of the South (though Provence oil is not comparable in commercial importance to the oils of Italy) is not unlikely to react, to some extent, upon the value of the Italian product. So far as materials for perfumery are concerned, no accurate information of the damage, if any, caused to the prospective crop has yet reached us; but it is almost impossible to suppose that a winter which freezes the water in Marseilles docks, covers Monte Carlo and Cannes with snow, causes the mercury at Bordeaux and Toulouse to sink to 12° F., and jeopardizes invalid lives at Biarritz by rendering that health resort temporarily many degrees colder than Stornoway, should pass without working serious injury on the orange trees and the delicate herbs and flowers of the Riviera. That the agricultural districts of Italy have suffered serious damage is now beyond doubt. From Rome to Naples the surface of the country is reported to be covered with a sheet of frozen snow. The Sicilian mountains are covered deep in white, and from Calabria comes the same story. The gathering of the olives had been effected before the cold wave set in, but the weather, it is said, has had a serious effect upon the pressing of the oil. Essential oils are also advancing in price, and the Sicilian dealers affect to believe that before long they shall be able to realize three times as much money for their oil of lemon as they obtained one or two seasons ago. High lemon prices react upon the quotations for concentrated juice, and through these upon citric acid. It was well known that the lemon crop had suffered long before and quite independently of the climatic disturbances that have visited Italy; but such gales as are reported to have visited the Palermo and Messina districts a few days ago may be trusted to leave their mark upon all that grows. In Spain and Africa things are, if possible, even worse than in Italy. That snowstorms should howl through Madrid and Catalonia be frozen is not surprising, for certain portions of Northern and Central Spain are notoriously subject to severe climatic depressions; but when the cold drives jackals and wolves into the streets of Malaga and Valencia, and six degrees of frost are registered on the rock of Gibraltar, the semi-tropical products of the Peninsula are not likely to escape injury. And the thought that from Algiers, the last refuge (until Koch) of pulmonary sufferers, the snow extends landward until it almost fringes the sands of the Sahara, should suffice to make the hero of Tarascon turn in his island grave.

Adulterated Spirit of Turpentine.

WE are indebted to Mr. Samuel J. Hinsdale, of Fayetteville, N. C., for the following information regarding a convenient method for detecting and for estimating petroleum in spirit of turpentine:

Put 10 drops of the spirit to be examined in a (moderately concave) watch glass, and float the glass on water which has a temperature of about 170° F. If the spirit is pure, it will evaporate and leave the glass quite dry in seven minutes. If the spirit contains even 5 per cent of petroleum, it will not have completely evaporated in that time. This experiment will prove the absence or presence of petroleum in the sample.

To estimate the *percentage* of petroleum adulteration, weigh the watch glass, and put into it 10 drops of the mixture and weigh again; then place it on water (at about 170° F.), and allow it to remain fifteen minutes, then take it off and weigh again. The difference between the weight of the watch glass and the third weighing will indicate the amount of petroleum in the sample; and, knowing the weight of the 10 drops, the percentage can be calculated. *About one quart of water at* 170° *F. should be used*, that the temperature may not fall much till the experiment is completed. A loop of wire is convenient to place the watch glass on and to remove it from the water.

The hydrometer will detect adulteration with benzin or petroleum, but it cannot be used to estimate the amount of adulteration.

The specific gravity of pure spirit of turpentine is about 0.865, and petroleum is the usual adulterant.

Estimation of Iron in Presence of Glycerin.

ABOUT six years ago, when working on Blaud's pills, I noticed that, when massed with glycerin, they invariably gave a very high reading for ferrous carbonate. I was reminded of this the other day when estimating some ferri carb. sacch., the ferrous carbonate for which had been precipitated in presence of glycerin. I found the yield of $FeCO_3$ to be almost 100 per cent. The reducing action of the glycerin being suspected, a 2-per cent solution of ferrous sulphate was prepared, and also a second solution of the same strength to which 2 per cent of glycerin was added. The first solution, on estimation, indicated 1.989, or practically 2 per cent, while the second, containing glycerin, indicated 2.61 per cent of ferrous sulphate.

The experiment was repeated several times with concordant results, thus proving that the presence of the glycerin gave rise to an error amounting to 33 per cent in excess of ferrous sulphate actually present. It is evident, therefore, that glycerin is quite as liable to lead one astray as sugar in estimating a ferrous salt, and, where accuracy is required, it must either be got rid of before the estimation is proceeded with or be allowed for in calculating the results.—WM. DUNCAN, *Pharm. Journ.*, Jan. 3d.

Ost's Copper Solution for Estimating Sugar.

THE solution of potassium copper carbonate, the preparation of which has been previously described (this journal, 1890, p. 152; see below), has the following advantages over Fehling's solution: It is very much more stable; it is much less reduced by cane sugar; slight departures from a particular mode of working cause less variation in the result, and consequently it is more easily managed; the amount of copper reduced by a given weight of sugar is from 1½ to 2 times as great; the different glucoses each reduce a different amount of copper; in using the solution volumetrically, the completeness of the reaction is sharply marked by the solution becoming completely colorless, and consequently no indicator is necessary.

In performing a gravimetric analysis, 50 C.c. of the copper solution containing 298.7 Mgm. of copper are heated to boiling for ten minutes with 25 C.c. of the sugar solution. In a volumetric estimation, 50 C.c. of the copper solution are heated with the amount of sugar solution needed to just decolorize the solution after ten minutes' boiling. The volume of the mixed solutions should be about 75 C.c.

Determinations have been made gravimetrically with the different glucoses. The following table contains a condensed synopsis of the results:

Copper. Mgm.	Invert Sugar. Mgm.	Dextrose. Mgm.	Levulose. Mgm.	Galactose. Mgm.	Arabinose. Mgm.
50	15.2	15.6	14.7	17.4	17.0
75	22.3	22.9	21.7	25.9	25.1
100	29.5	30.3	28.5	34.5	33.1
125	36.8	37.8	35.4	43.1	41.1
150	44.0	45.3	42.5	51.8	49.3
175	51.5	52.9	49.5	60.8	57.5
200	59.1	60.8	57.0	70.3	66.2
225	67.5	69.2	65.2	80.3	75.4
250	76.7	78.4	74.4	91.2	85.5
275	87.1	89.9	85.9	103.3	97.1
298.7	100.0	102.5	99.0	117.0	109.5

The numbers in the last horizontal line show the amount of sugar required to completely precipitate 50 C.c. of the copper solution, *i.e.*, the volumetric factors.

Lactose does not give such concordant numbers as the above glucoses; 198 Mgm. of lactose (hydrated) completely reduce 50 C.c. of copper solution—that is, reduce 298.7 Mgm. of copper—and 150 Mgm. of lactose reduce 231.2 Mgm. of copper.

The test solution is prepared in the following manner:

Copper Sulphate, cryst.	23.5 Gm.
Potassium Carbonate	250.0 "
" Bicarbonate	100.0 "
Distilled Water	to make 1 liter.

Dissolve the potassium salts in about 850 C.c. of the water, and the copper salt in 100 C.c. Gradually add the latter to the former, and make up the volume with distilled water to 1 liter.

The amount of sugar present in the liquid to be tested should be about 1 per cent. The liquid should, therefore, be suitably diluted to that strength.

Estimation of Corrosive Sublimate in Dressings.

VARIOUS methods, some quite complicated, have been proposed for this purpose. The most simple is that of M. Freund, who extracts the mercuric chloride with ether, converts it into calomel, and weighs. He recommends to take 50 Gm. of the sublimate dressing, to completely extract it with ether in a suitable apparatus (a Soxhlet extractor is best), to evaporate the ethereal solution, to dissolve the residue in boiling water, and then to reduce the mercuric salt by Rose's method. This is done by adding hydrochloric acid and an excess of phosphorous acid (produced by allowing phosphorus to become oxidized in a moist atmosphere), setting aside for twelve hours in the cold or at only a gentle heat (not over 50° C.), then filtering off the calomel, washing, and drying.

It appears, however, that the ether to be used as extracting menstruum must be entirely free from vinyl alcohol—which was not long ago shown to be a very common and persistent concomitant of commercial as well as many brands of purified ether. At least this is stated on the authority of W. Lenz, who abstracted Freund's paper for the *Zeitsch. f. Anal. Chemie.* Mr. Lenz, in fact, says that the ether employed must give no reaction whatever with mercuric chloride.

Another reliable method, involving the reduction of the mercuric salt, and the subsequent estimation of the produced mercurous salt (calomel) by reoxidizing the latter with a volumetric solution of iodine, is that proposed by Beckurts. It is as follows: Twenty Gm. of the sublimate dressing (gauze, cotton, etc.) are cut up small and placed into a liter flask together with 0.5 Gm. of chloride of sodium and 250 C.c. of warm water. After all air bubbles have been carefully expelled the volume of liquid is made up to 1,000 C.c. After the mixture has been thoroughly agitated, 500 C.c. of it, corresponding to 10 Gm. of the dressing, are filtered off. [If great accuracy is required, only 493 C.c. should be filtered off. The 20 Gm. of dressing (assumed to be cotton, which has a spec. grav. of 1.400) mixed with the water may be reckoned to take the place of 14 Gm. of the latter; hence 10 Gm. of dressing are equivalent to 7 Gm. of water.] The filtrate is received in a flask, mixed with a solution of 0.2 Gm. of ferrous sulphate, then with solution of soda to alkaline reaction, and afterwards with dilute sulphuric acid to acid reaction. This causes a reduction of the corrosive sublimate to calomel, the separation of which renders the liquid turbid. Next, a sufficient quantity of $\frac{1}{100}$ normal volumetric solution of iodine is added to have it slightly in excess, and the latter then determined by titration with $\frac{1}{100}$ normal hyposulphite solution.

The number of $\frac{1}{100}$ iodine solution actually required to convert the mercurous into mercuric chloride, when multiplied with 0.00271, will give the amount of sublimate in 10 Gm. of the dressing.

Improved Assay of Cantharides.

THE following process of assay is offered as being suitable for pharmacopœial purposes:

Moisten 10 Gm. of the drug in moderately fine powder, with sufficient solution (10 per cent) of sodium hydrate to render the mixture strongly alkaline, and digest six hours in a warm (130° F.) place until the mass becomes somewhat brittle; add dilute hydrochloric acid until a decided acid reaction is obtained; again dry at a low temperature (130° F.) and pulverize; transfer to a modified Soxhlet extractor, and exhaust the powder with hot chloroform by repercolation (50 C.c. $CHCl_3$ are sufficient).

After three or four hours of percolation, evaporate or recover the chloroform by distillation from the flask, add CS_2, transfer the contents to a filter, and continue to wash with CS_2 as long as it takes up soluble matter. Allow the filter to dry spontaneously, treat with hot

chloroform, collect the filtrate and pass through a small quantity of purified charcoal, thoroughly washing with $CHCl_3$, and evaporate the chloroform solution in a tared capsule; dry the residue (crystals) in a warm place or over H_2SO_4 (cantharidin being volatile at 212° F.) to a constant weight, and weigh as cantharidin. Yield, 1 per cent on an average.—J. B. NAGELVOORT in *Amer. J. Pharm.*

Determinations of Alkaloids and their Molecular Weights.

FOR determining ammonia, Kjeldahl has recommended a method of titrating the acid iodometrically. The author has applied this process with advantage for estimating alkaloids. He proceeds as follows: A weighed quantity of the alkaloid is dissolved in an excess of decinormal sulphuric acid and dilute alcohol, made up with water to 50 C.c., and 50 C.c. of alcohol added. An excess of potassium iodide and iodate is added, which causes any excess of acid to react on these salts, setting iodine free. This is then titrated back with thiosulphate (hyposulphite) until the yellow color of the solution disappears. If A C.c. decinormal sulphuric acid were used, and B C.c. decinormal thiosulphate solution, the molecular weight of the alkaloid being V, the quantity of the latter is $\frac{V\ (A-B)}{10,000}$, or, the quantity of the alkaloid being found to be p, its molecular weight $\frac{p\ 10,000}{(A-B)}$.

Almost all alkaloids can be determined according to this method, the only exceptions being pilocarpine, narcotine, theobromine, and caffeine, which is due to the ready dissociation of their sulphates. In the case of pilocarpine this may be prevented by titrating in aqueous solution; or, in the case of narcotine, the solutions should be thoroughly cooled.

Details of the carrying out of this process are given for the quinine, opium, and strychnine alkaloids, as well as for using it in the case of mixtures of different alkaloids. —A. CHRISTENSEN in *Chem. Zeit.*

Test for Detecting Sesame Oil in Olive Oil.

AT a recent meeting of the Pharmaceutical Society at Edinburgh, Mr. J. C. Tocher presented the following paper on the above subject:

I had occasion a short time ago to examine some oils, and while so engaged I failed to find a published reliable test for the detection of sesame oil in smaller quantities than 10 to 25 per cent. The U. S. Ph. test is not reliable below 20 per cent, and serves principally as a distinctive test between sesame and olive oils [The author is mistaken in this. The U. S. Ph. does not mention sesame oil in connection with the tests for olive oil. It only appends the note, "Absence of appreciable quantities of other fixed oils of similar physical properties." And in the United States there is much more danger of an adulteration with cottonseed oil than with any other fixed oil.—ED. AM. DRUGG.] Considering the liability of olive oil being readily adulterated with sesame oil, I applied myself to the task of obtaining a more satisfactory test for the latter. I have been successful in finding one which, although it cannot rank with the silver test for cottonseed oil, still enables one to detect with rapidity and ease 5 per cent of adulteration, while 1 per cent can be detected by exercising a little care in the manipulation. I found that the acetic acid extract from sesame oil, which I was examining for another purpose, turned blue or bluish-purple when boiled with hydrochloric acid in which a few grains of pyrogallol had been dissolved. The same experiment was tried with sesame oil itself, using equal parts of the pyrogallol solution with the oil, with the result that the pyrogallol solution turned purple. I treated olive oil in a similar manner, and found it to give only a faint yellow coloration. Almond, rape, and groundnut oils gave no color, while sunflower oil turned the solution a very faint blue, and cottonseed oil imparted a very light red. It now occurred to me that this behavior of sesame oil with HCl solution of pyrogallol might be utilized for its detection in olive oil. Accordingly, solutions of sesame oil in olive oil of various percentages were prepared and the test applied. The following are the results obtained upon treating olive, sesame, and other oils with hydrochloric acid solution of pyrogallol and boiling:

Pure Olive—Faint yellow.	Almond—Colorless.
Sesame—Deep purple.	Groundnut—Colorless.
20 p. c. Sesame—Purple.	Cottonseed—Very faint red.
10 p. c. Sesame—Purple.	Sunflower—Faint olive.
5 p. c. Sesame—Faint purple.	Rape—Colorless.
1 p. c. Sesame—Very faint purple.	Oleic Acid—Faint red.

I obtained the best results by applying the test as follows, viz.: Prepare a solution of pyrogallol in pure hydrochloric acid (3 ss. to ℥ i.). Measure half an ounce of this solution into a wide-mouthed test tube provided with a cork, and add half an ounce (an ounce if the proportion of sesame oil be small) of the oil to be tested. Shake vigorously, and then set aside for about a minute to allow the oil and acid to separate. Draw off the supernatant liquid by means of a pipette, and boil the hydrochloric acid solution for about five minutes, when, if sesame oil was present, the color of the solution will have changed to purple. The color does not appear at once, but develops on boiling for a short time. When viewed by transmitted light the color is wine-red to purple, and by reflected light it is blue, which is best observed by pouring the solution into a small porcelain basin. When the purple solution is allowed to stand for some time a small purple deposit takes place. It has not yet been examined, but it has the appearance of a dye. It would be interesting to determine what this substance is, because the pyrogallol reaction with sesame oil points probably to the presence of a peculiar constituent in the oil.—After *Pharm. Journ.*

Detection of Paraffin in Beeswax.

A FEW grammes of the substance in fine air-dried shavings are gradually heated in a small porcelain capsule until fumes begin to rise. A half-liter wide-mouthed bottle is then inverted upon the capsule, and when filled with white vapors is closed and set aside until the fumes have condensed upon its walls. The sublimate is then dissolved in 3 C.c. of chloroform, the chloroform evaporated in a test tube, and the residue boiled with 4 C.c. of soda solution. If paraffin was present, it will, after cooling, be found floating on the clear solution. A drop of the chloroform solution may also be evaporated on a slip of glass and examined microscopically.

The fumes from pure beeswax are not so white as from paraffin, and are only obtained at a higher temperature (300°–320°). The sublimate gives a colored solution with chloroform, and a colored and turbid solution with soda. The residue from the chloroform solution is a dull film; paraffin, on the contrary, gives separate grains in a clear field.—H. HAGER in *Pharm. Centralh.*

The Reddening of Carbolic Acid.

E. FABINI ascribes the reddening of carbolic acid to the action of copper, which he believes to be present in the carbolic acid, even where the original crude material did not contain any. The body is of the nature of a copper derivative of phenol. Fabini calls it diphenyl-copper, $C_6H_5.Cu_6.C_6H_5$. According to the writer, the addition of sulphate of copper to carbolic acid, dissolved in ammonia, forms this body, which, even in a proportion of 1 to 300,000, is capable of imparting a plainly perceptible reddish color to previously colorless carbolic acid. Fabini's substance is a black, light resinoid body, colorless and tasteless, and reducible to an amorphous powder by rubbing. When heated it evaporates with a yellowish vapor. It sublimes with a peculiar rancid-aromatic odor, forming a rose-colored solid deposit, which under the microscope appears in the shape of tears, and with concentrated sulphuric acid gives the characteristic blue coloration. Under increased heat the body melts, evolving a vapor which, when ignited, burns with a brilliant flame, but in the ashes of which no copper could be traced. The presence of the substance in carbolic acid is easily proved —even although the acid be not red—by adding to the acid a few drops of ammonia, followed by the same quantity of hydrogen peroxide solution, when an intense carmine-red color is produced in the course of a few hours or on gently warming.—*Chem. and Drugg.*, after *Pharm. Post.*

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EDITORIAL.

IN considering the subject of the standardization of galenical preparations one may very naturally wonder whether, in view of the extremely complex structure of many of the vegetable substances employed as therapeutic agents, the trouble and labor involved in devising and executing a process which will insure for each preparation the possession of a standard percentage of each active principle it may naturally yield, are justified by the advantages which are to be derived.

To illustrate one aspect of this question: A pint of the tincture of nux vomica can be bought for, say, 60 cents, and it has about a grain of the alkaloids in each ounce. Of these about a half (according to Dragendorff) may be strychnine. There is no satisfactory evidence that the remainder have any recognizable therapeutic value, so that we get, in the pint, about 8 grains of the real medicinal agent, and this can be bought for a little more than a quarter of a dollar.

At best the tincture of nux vomica is of very unreliable strength; and, for anything that we know to the contrary, a tincture which may be able to answer all the requirements of the most exacting standardist when it is first made, may undergo subsequent changes which may either increase or diminish its alkaloidal strength, and any possible advantage to be derived from its standardization will then be rendered unavailable without another assay. Sulphate of strychnine is not apt to deteriorate in the same way.

Now, coming to the use of the drug as a medicine, all that we know of its effects relates practically to the action of this one alkaloid, and preparations of nux vomica are used for the sake of the strychnine which they contain. If, then, it is desirable that we should be able to know, with any degree of certainty, how much strychnine is being taken, why is it not better for this reason, as well as for the sake of economy, to use the alkaloid or one of its salts of definite chemical composition, rather than go through all the rigmarole of standardizing a tincture which is no better, if as good, after it has been prepared, than a solution, or tablet triturate, or abstract, or some other convenient preparation containing a known quantity of the alkaloid itself? It really seems to us that in this matter pharmaceutical chemists run the risk of repeating the experience of the mountain which was in labor and brought forth only—*a mouse;* and that by the time they have discovered the ways and means for standardizing their galenical preparations, the doctors will have ceased to prescribe them and will have come to the belief that it is better and more economical to use the active principles, which can be measured, weighed, studied, and administered as articles of definite composition and properties, than resort to preparations of complex character, uncertain composition, and with liability to change under the various conditions attending their preservation.

It appears to us that, with their superior knowledge of pharmacology, pharmacists are not doing themselves credit in failing to advocate the greater use of preparations containing alkaloids and their salts, in place of trying to patch up the relics of antiquity so that they may still serve, in an imperfect way, to answer the increasing demands by physicians for agents of definite therapeutic value. They had much better devote more attention to devising forms which will enable them to dispense the active agents in a manner rendering them capable of being readily kept and used, and in bringing them to the notice of physicians in such a way as to encourage their adoption.

When the active agent rather than the crude drug is recognized as the remedial substance, we shall then be no longer restricted to the seeds of the *Strychnos Nux vomica* as the source from whence to derive our medicine, but the maker of strychnine will use whatever plant he can get to yield it in paying quantities and uncontaminated with other products. The same will be true of the majority of vegetable proximate principles; and the business of searching for and extracting these medicinal agents, and of establishing their chemical and pharmacodynamic properties, will doubtless prove, for many, more congenial and profitable than life in a drug-store, with its trivial cares and annoyances, to which so many are now subjected.

To those who are concerned about the question of *how* to standardize their galenicals, we would therefore say, "Is the game worth the candle?" Better be sure that it will pay for the labor before you undertake to do it with the risk of following a side issue which may lead to nowhere, and return to the main road only to find that the rest of the world has gone on and that you have "got left."

A Gastronomic Reform.

THE *Detroit Free Press* has the right idea. "There is no gastronomic abomination," it says, "more hideous than that suggested by the announcement on the bill-of-fare of the 'American-plan' hotel that 'everything in season' is served. The same force of cooks or the same expense in hiring cooks necessary to the botching of sixty dishes could make a poem of a five-course dinner of twenty dishes. So, too, it would be with the service. The well-bred man, accustomed to good living, would rather have a soup, a fish, a roast, an entrée, and a dessert, well cooked and served, than to have a greater variety of culinary monstrosities thrown at him by waiters who are too busy to do their work in a civilized manner. Good cooking, good service, less dyspepsia, and simple bills of fare printed in English would please the people."

NEWS FROM THE TRADE.

CANADA.

The semi-annual meeting of the Council of the Ontario College of Pharmacy was held in Toronto on the afternoons of February 3d and three following days. The councillors present were: Messrs. J. A. Clark, Hamilton, president; C. D. Daniels, Toronto; S. S. Hobart, Kingston; J. J. Hare, Woodstock; L. T. Lawrence, London; C. S. McGregor, Brantford; J. H. MacKenzie, North Toronto; J. McKee, Peterboro'; J. W. Slaven, Orillia; A. B. Petrie, Guelph; H. Walters, Ottawa; W. B. Sanders, Stayner.

The resignation of Mr. R. N. Murtell, of Treswalin, on account of lack of time to attend the meetings, was tendered and accepted, and Mr. S. M. Everest, of Arkona, was elected to fill the vacancy.

Messrs. MacKenzie and Daniels were appointed representatives to the Industrial Exhibition Association, and Messrs. Hare and Lawrence to the Western Fair Association.

The report of the registrar, Mr. I. T. Lewis, was presented. The receipts, including $4,278 balance from last year, were $14,913; expenditures, $6,030; balance on hand, $8,883. Assets, $42,128, including building, $17,160; lot, $5,000; furniture, $1,675, against a total liability of $15,751. Eighteen physicians have been placed on the college register since August, and the total number of apprentices who have applied for registration is 101.

Mr. E. B. Shuttleworth, the dean of the College, reported the attendance larger than ever, there being 92 juniors and 76 seniors last session. Total amount of fees paid in by students is $8,533. He recommended the abolition of the supplementary junior examinations in January, as they have not proved satisfactory. This recommendation was adopted.

The president and vice-president were named a committee to continue negotiations with the Pharmaceutical Association of the Province of Quebec with regard to reciprocity in diplomas, which so far have not been satisfactory. The Quebec Association asks too much. They require the O. C. P. licentiates to have complied with the provisions of the Ontario Pharmacy Act of 1889, which includes a junior and senior curriculum and a four years' apprenticeship (where would we older men come in?), and in return ask acceptance of the diplomas granted to licentiates of pharmacy in Quebec since 1870.

President Clark reported on the visit to the meeting of delegates of the Board of Pharmacy of United States and Canada at Old Point Comfort on September 9th and 10th last. He recommended that the O. C. P. accept no diplomas until the United States standard equalled ours.

The Building Committee recommended that a building be erected in rear of the present one, designed for practical work, the first floor to be devoted to pharmaceutical work and the second used as a clinical laboratory. The estimated cost of a plain brick structure complete was $9,350. Should this plan be adopted the College will possess the best equipped school of pharmacy in America.

Matters have assumed a most complicated turn with reference to the management and teaching of the O. C. P. Mr. E. B. Shuttleworth, who has been dean of the College since 1868, and Prof. Airson, have been turned out of their positions for the sole reason that there has been friction between the teaching staff and certain members of the Council.

When the Council met on the 5th the report of the committee appointed to advertise for professors and a registrar was read.

It was recommended that Mr. A. U. Scott, B.A., M.D. (Toronto), be appointed to Prof. Shuttleworth's position at a salary of $1,800 a year, and that Chas F. Heebner, of New York, at $1,650; G. Chambers, B.A., M.D. (Toronto), at $600; and J. F. Fotheringham, B.A., at $750, be added to the staff. After considerable energetic oratory and many personalities had been indulged in, the report was adopted.

But the end of the trouble is enveloped in nebulosity as yet. Hitherto the druggists throughout the province have been very apathetic. They elected the most popular men in the several districts and allowed them to run the show to suit themselves. The men were willing to do the work and were returned year after year. Three or four years ago a clean sweep was made in the Council. The new blood immediately began to work against the partisans of the old councils, with the result above. But the druggists are waking up. Many of the younger members of the craft, as well as most of the older, are highly indignant at such high-handed proceedings, and I have it on very good authority that the leader of the revolutionists will not be returned at the coming election. Of course it is a difficult matter to judge between right and wrong in this case, but it would seem that the whole is the result of personal spite.

GEORGIA.

On account of increase of the business of SOLOMONS & Co., of Savannah, they have had to increase their force, and have secured the services of Marion J. Wilbor, N. Y. C. P., class '89, late with Reid & Co. Mr. Wilbor has tired of "single blessedness," and, the 21st ult., was married to Miss Carable Rahner, of Augusta. May success, and an abundance of it, attend them in their new copartnership.

It is expected that Georgia will be well represented at the coming meeting of the A. P. A. at New Orleans the 27th prox. There is no doubt that the Association will meet a *warm* reception in the Crescent City.

DR. FAHR is just making his annual tour through Georgia in the interests of the people and Keasby & Mattison.

The late DR. B. F. ULMER'S drug store at Savannah has just been opened in the interest of the estate. They have already had some good offers for the business as it stands.

DR. J. S. DUNN, with Lehn & Fink, New York, is calling upon the trade, and has many stanch friends. One of them in Charleston, S. C., was so loath to part with him the other day that, in bidding him good-by, he gave him such a hearty shake as to break one of the bones in the wrist, but, while painful, a good recovery is expected.

THE ALEXANDER DRUG AND SEED CO., of Augusta, is out in a retail priced list, with prices distressingly close to the tap-root.

REID & CULPEPPER, of Thomasville, have sold out their stock of drugs to R. Thomas, Jr., and R. C. Dickinson, and stationery and books to J. E. Robinson & Co. Messrs. R. & C. are intimately connected with the new Citizen's Savings and Trust Bank, to which they expect to devote their entire attention.

For several Sundays in Savannah the hours have been quite dull and monotonous, on account of the enforcement of the Sunday laws by the new mayor. Many of the drug stores had large displays of signs and placards, proclaiming that only medicines could be had there. The police have done their duty well, and reported promptly whatever business of any kind was being carried on or opened on Sundays. One druggist paid in five dollars for the privilege of selling a bottle of cologne; but at the last meeting of the city council the old law was repealed, and a new one substituted permitting drug stores to sell anything on Sundays excepting spirituous liquor, and that on resident physicians' *bona fide* prescriptions only. The enforcement of the law attracted a good deal of attention outside of Savannah, and the mayor received many letters daily from all parts of the State, and in fact all over the country, complimenting his stand and moral courage and nerve in enforcing the laws.

Never was a Drug Clerks' Association so much needed as in the recent Sunday Law campaign A well-organized association could have done much toward making moral Sunday laws. The subject is attracting no little attention over the country, and now is the time for drug societies of all kinds to take hold and free themselves from such uselessly long hours.

MCCAULEY & Co., corner Drayton and New Houston streets, Savannah, have sold out to M. JOHNSON & Co. Mr. Johnson first established the business and sold out, but has changed his mind, and with increased facilities will have a better trade than ever. Mr. McCauley is about to locate in "the land of flowers."

DR. WM. DUNCAN, of Savannah, whose critical illness has been reported, is gradually improving.

J. T. SHUPTRINE, one of the crack shots and deer slayers, and part owner of "Tetterine," of Savannah, has had such a "grip" that he was confined to his bed for a week or two, but is up and at business again.

C. B. WARLAND, of Savannah, has applied and is about to receive a patent for "Sabaline" and process. It is an extract of *Sabal serulata*, or Saw Palmetto, which grows in such abundance thereabout, and has hitherto been considered worthless. The Jute Trust for the past two years has so increased the price of bagging for cotton as to considerably embarrass the cotton planter, and has put many heads to thinking to produce a substitute. Mr. Warland, in experimenting, has found that the fibre makes an excellent and cheap substitute for jute in making cotton bagging, and succeeded in making a solid extract rich in tannic acid, containing over 30 per cent. He will form a company for carrying out his plans. His processes have been patented, and the enterprise promises a big industry for the State.

The school children are coming to school again since the grip and small-pox scares are over. The attendance at the public schools during the first three weeks in January was hardly 50 per cent of the pupils enrolled, while 10 per cent of the teachers were absent every day. Now the absence of a teacher is an exception, and the attendance of the children has reached 90 per cent.

The many friends here of the late WALTER BUDWELL were much pained to hear of his sudden death in Roanoke, Va., an account of which recently appeared in the daily papers. He was for a long time in the store of Osceola Butler, of Savannah, where he was much esteemed and made numerous friends.

ILLINOIS.

E. A. LYON, has had a new and modern front put in his store at 22d and State streets, Chicago.

W. F. HARRIS, a former clerk of Clark Bros., Chicago, died recently.

The Board of Pharmacy of this State seems to be ever progressive. Examination of candidates for certificates may now be conducted on the "practical" plan. For this purpose dispensing laboratories have been provided in Chicago and in Springfield. Under this plan the candidates are required to answer a few theoretical questions in pharmacy and chemistry, to prepare a tincture by percolation, and to write correctly and compound a specified number of prescriptions. These examinations may be taken at any time, the only additional cost to applicants being the per diem expenses of the examiners allowed by the law.

PROF. EBERT has delivered several lectures at the Chicago College of Pharmacy on "Personal Observations on Pharmacy and Pharmaceutical Practice," which have been quite interesting. The lectures on "Bacteriology" by Prof. Gradle have just closed.

The ever recurring nightmare to legitimate, competent pharmaceutical practice has again made its appearance in this State. We refer to the two bills presented by country representatives at the General Assembly for the purpose of empowering physicians to conduct pharmacies without special registration as pharmacists, and permitting them to sell drugs promiscuously by virtue of their certificate from the Board of Health. Senator Thiele, in co-operation with a number of prominent pharmacists, is manfully fighting these bills.

Word recently reached Chicago that HENRY B. BRADY, of England, had died. As Mr. Brady was an honorary member of the Chicago College of Pharmacy, and had been actively engaged, after the conflagration of 1871, in the re-establishment of the college, the college membership, at a meeting a few days ago, voted to transmit engrossed resolutions of condolence and regret to the family of the deceased and to the Pharmaceutical Society of Great Britain. [See portrait of Mr. Brady on the first page of this journal for February 15th.]

MESSRS. FORSYTH & SCHMID disposed of their store at Wallace and 31st streets, Chicago, to J. F. Forbrich. The firm then dissolved, Mr. Forsyth taking the store at State and 31st streets, and Mr. Schmid the one at Roseland.

RIMMELE & HISS have purchased the Wentworth Avenue Pharmacy at Wentworth ave. and 25th st., Chicago.

GEO. UMSTED has opened a new store at Adams street and Centre avenue, Chicago.

C. J. KASBAUM has purchased the store at 378 Blue Island avenue, Chicago.

The wife of JOHN C. HESS, the Division street (Chicago) druggist, died recently.

A. G. LUNING has established a store at 1800 North Ashland avenue, Chicago.

The druggists of Chicago, with the druggist-senator Thiele at their head, are again battling the telephone monopoly in the State Legislature. With repeated and persistent assaults at the capitol and an ordinance in the city council, both for the purpose of reducing the exorbitant tariff, it is fair to presume it will not be long before the company succumbs.

The Chicago College of Pharmacy held a special meeting on February 17th for the purpose of revising the constitution and by-laws. There was a goodly attendance, which seemed to take more than ordinary interest in the proceedings. The draft prepared by the committee was adopted with but a few minor changes.

The Board of Pharmacy meets in this city for the regular examination of candidates for registration on March 11th.

The graduating exercises of the Illinois College of Pharmacy (Pharmaceutical Department, Northwestern University) for the term of '90 and '91 were held in the Grand Opera House, Chicago, Tuesday, February 24th.

The following gentlemen, from a class of forty-two, were granted diplomas:

James Benton Atkinson, Litchfield, Minn.; Arthur W. Bell, Chicago; James C. Bishop, York, Neb.; Otto C. Bock, Sheboygan, Wis.; Fred. W. Cassingham, Springfield, Ill.; Chester H. Bolles, Roberts, Ill.; John A. Dunn, Norwich, Conn.; Joel T. Fletcher, Woodburn, Ky.; Geo. F. Forster, Ottawa, Ill.; Edwin J. Jenkins, Bryan, Texas; Julius Kahn, Quincy, Ill.; Blitz G. Kenny, Hillsdale, Mich.; John Kirkpatrick, Cambridge, Ohio; M. Ben. Kohner, Chicago; William J. Lloyd, Cambria, Wis.; Arthur A. Ludwig, Chicago; Thos. B. McKelligan, Chicago; Thos. John C. Malster, Belore, Ohio; Albert C. Miller, Wellsville, Ohio; Edward R. Neill, Rushville, Ill.; Geo. D. Oglesby, Marion, Ill.; Frank E. Olin, Evanston, Ill.; Harry L. Park, Winfield, Kan.; John E. Roberts, Cambria, Wis.; Lewis M. Sawyer, Burnett, Wis.; Geo. Selmer, Droutheim, Norway; John L. Taylor, Libertyville, Ill.; William F. Voertman, Portage, Wis.; Fred. M. Wales, Lanark, Ill.

Eight students could not graduate with the class because under age or deficient in experience.

Messrs. Dunn, McKelligan, Oglesby, Roberts, and Voertman received honors.

The junior honor men were: Max Wickhorst (gold medal), Healy Davis, William C. Hayhurst, and Elmer E. Patton.

The degrees were conferred by the president of the University, Dr. Rogers, who, in his address to the class, said that pharmacy is rapidly advancing to the dignity of a profession, notwithstanding its mercantile side, and cited in evidence the circumstance that so many of the great universities are establishing departments of pharmacy. He believed that colleges of pharmacy were as much entitled to recognition by the universities as the colleges of law and medicine, and was glad to welcome the young gentlemen before him to the privileges of alumni of the university which he had the honor to represent. He urged upon the graduates the importance of broadening out their education by reading the best English literature (not the newspapers) of the day and of the past, and of keeping abreast of the progress of science, and, in short, of making themselves worthy of their degree.

President Rogers was followed by Dr. McPherson, whose address emphasized the importance of strict integrity in their business transactions, of always bearing in mind the ethics of their profession, and of never swerving in their loyalty to their Alma Mater. He closed with

a humorous reference to the relation between the professions of medicine, divinity, and pharmacy. The pharmacist, said he, assists the physician in the cure of his patient, while the clergyman assists in the covering up of his mistakes.

After announcing the honor men, Prof. Oldberg pronounced a little benediction and assured the members of the class that if all the good things of the world were bestowed upon them in the abundance he wished, they would never have cause to complain of his weights and measures.

The class was banqueted by the Alumni Association at the Wellington, Prof. Quine officiating as toast-master. Speeches by Pres. Rogers, Prof. Oldberg, Dr. N. S. Davis, dean of the Medical Department Chicago Medical College; Hon. Henry Boon, dean of the Law School; Dr. J. S. Marsall, dean of the Dental College; Will H. Lowe, class of '89; Louis E. Bonn, '89; Cary Hopkins, '88; J. H. Taylor, class of '91; and last by Prof. Quine, who treated the guests to a humorous dissertation which convulsed even such sedate old gentlemen as Dr. Davis and Judge Booth with laughter.

ST. LOUIS.

In the course of human events came the annual meeting of the St. Louis College of Pharmacy Alumni Association. The attendance was large and the meeting a lengthy one. The new officers for the twelve months to come are as follows: President, Prof. Francis Hemm; first vice-president, Dr. F. A. Temm; second vice-president, H. J. Tritchler; recording secretary, Dr. J. C. Falk; corresponding secretary, H. L. Goodman; treasurer, Chas. Gietner; registrar, O. F. Heitmeyer; new members of the executive board, Dr. H. M. Whelpley, C. M. Nicholson, and J. W. Tomfohrde. The Association will give two prizes this year. One is a gold medal for the senior student making the best examination, and the other a set of fine books for the junior student making the best examination. The Association has a cash balance of over two hundred dollars on hand, and a membership list of about 150.

The College is taking active steps, through a committee, to have a new home before the next session opens. It is quite probable that the location will be on Lucas place, between Fourteenth and Twentieth streets. The object in moving is to procure a more desirable location and erect a much larger building than the old one. Special attention will be given to laboratory accommodations.

The commencement exercises will be held at Memorial Hall on the evening of March 25th.

There is a rumor that we are to have a new college of pharmacy, to be run on the cut-rate plan. This is one of the evil effects of the cut rates on patent medicines, and no doubt but what the institution would be advertised on the same principle that the nostrums are placed before the public.

The fate of the proposed amendments to the pharmacy law is not known, and the prospects are not as good as they once were, for the time is drawing near for the close of the Legislature.

The prospects for a large delegation from this city to the American Pharmaceutical Association convention is not very good. Perhaps there will be as many as last year, but the party should be much larger.

A sign in the vacant building corner of Twentieth and Market streets says that a drug store will be opened there in a few days. No information is given as to the proprietor or clerks. It is doubtful if there is much necessity of new stores in any section of the city; still those that open seem to live, if not thrive.

FRANK DAVIS, PH.G., of Belleville, Ill., is in the city quite frequently. He is a worker in the cause of the profession.

MR. SNUGGS has resigned his position with Adam Roth on West Olive street, and will soon commence work in a new store.

MR. MATLOCK has given up his position at the Luyties Pharmacy on Washington avenue, near Leffingwell avenue, the object being to find more time for study at the College of Pharmacy. He is also president of the Omega Phi Society.

FRED. A. MOSES, at one time a druggist of this city and also of Belleville, Ill., is now in the sewing machine business at Moberly, Mo. Thus it is that we drift in this world.

C. C. BORCHERS, PH.G., is in charge of the dispensing department at the Missouri Pacific Hospital, and took a hand in the first use of the Koch lymph in this city. Charley is quite a doctor, even if he has not attended a medical college.

The Mississippi Valley Medical Association will hold its seventeenth annual session at St. Louis, Wednesday, Thursday, and Friday, October 14th, 15th, and 16th, 1891. A large attendance, a valuable programme, and a good time are expected. The members of the medical profession are respectfully invited to attend. I. N. Love, M.D., is chairman Committee of Arrangements, 301 N. Grand avenue, St. Louis.

DR. H. M. WHELPLEY has just returned from a trip East, where he was called by the death of his grandfather, the Hon. Warren Chase.

D. L. HAIGH expects to give up pharmaceutical affairs, for the present at least, and is arranging to enter on some large commercial transactions. We hope he will not forget the poor pill rollers.

DR. J. C. FALK will conclude his work at the City Hospital April 1st, and then open an office down-town. He has no desire to again compound prescriptions.

PROFESSOR FRANCIS HEMM is the worthy president of the Alumni Association of the St. Louis College of Pharmacy. He was a charter member of the organization fifteen years ago.

THEO. ILG and W. R. CLARK, both of this city, joined the Alumni Association of the College of Pharmacy at the March meeting.

The retail druggists of this city have called a meeting for March 6th, and propose to combine and remedy all evils. The wholesalers are invited to be present.

The reported combine of soda-water apparatus manufacturers does not seem to interest the retail druggists of this section of the country.

The St. Louis Drug Clerks' Association seems to be taking a sound and protracted sleep.

DR. AUG. T. FLEISCHMANN, of Sedalia, left his store long enough to visit this city recently. He says the capital of the State is sure to be located at Sedalia.

The next meeting of the St. Louis Club of Microscopists will be held the first Thursday in April.

B. J. OTTO is doing a fine business in his store at the southeast corner of Morgan and 28th streets.

M. W. ALEXANDER is taking an interest in the local druggists' meeting, which is a good point in favor of success.

There will soon be plenty of good drug clerks looking for situations, as the College of Pharmacy turns out a large class on the 25th inst.

The proposed amendments to the Pharmacy Bill have not yet passed the House.

The Laclede Pharmacy, at Sixth and Chestnut streets, keeps open all night for the accommodation of the public. Joe Tierney, the proprietor, is a very popular druggist.

The homœopathic drug stores are all doing a good business. No cut rates with them.

Remember the Missouri Board of Pharmacy meeting at Kansas City, the first Monday in April. So says Secretary Sennewald.

The funeral services of General Sherman were the occasion of a large number of strangers in the city and almost as much rush as we have in Fair week or during the Exposition. Several of the druggists are Grand Army men and took a prominent part in the procession. Nearly all of the business houses were closed in memory of the silent hero. Amateur photographers were out in full force for the procession, and several druggists and physicians were in the list.